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**From:** Albright, David  
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**Subject:** R9 Statement on Cyclic Steam injection wells

Ron/Holly:

Thank you very much for your quick response back to us the other day. I apologize for the short notice and really appreciate your assistance. Below is the statement that our public affairs office released to the AP –

What are cyclic steam injection wells and how are they regulated?

Cyclic steam injection wells are a type of enhanced oil recovery well that uses alternating phases of steam injection and oil production from the same well. Cyclic steam wells inject into hydrocarbon-bearing formations to recover oil that is very viscous. The steam is used to heat the oil to make it flow more freely into the wellbore, then the oil is brought to the surface. There are several thousand cyclic steam wells in California and they are regulated by the California Division of Oil, Gas, and Geothermal Resources (DOGGR) as Class II Underground Injection Control (UIC) wells.

From discussion with DOGGR, EPA understands that some cyclic steam wells inject fluids above fracture pressure. EPA's Safe Drinking Water Act (SDWA) UIC regulations stipulate that injection into Class II wells may not initiate new fractures or propagate existing fractures in the confining zone adjacent to Underground Sources of Drinking Water (USDW) [40 CFR part 146.23(a)(1)], however, the regulations do not prohibit injection into Class II wells above fracture pressure within the injection/production zone.

As with other Class II wells in California, cyclic steam wells would require approval of an aquifer exemption by EPA if the oil-bearing formation they inject into is an aquifer with total dissolved solids (TDS) levels below 10,000 mg/L (ppm). As EPA noted in our March 9, 2015 letter, the State did not include a specific accounting of cyclic steam wells in its "Breakdown of Wells Potentially Injecting into Non-Exempt USDW Zones" (Enclosure B of the State's February 6, 2015 letter to EPA). Thus, EPA is now requiring the State to update Enclosure B by May 15, 2015 to include cyclic steam wells, and provide a schedule for completing the State's

review of these wells and bringing them into compliance by February 15, 2017.

Thanks!

David

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